

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:  
conversion means for converting input digital  
image data into coefficients based on spatial  
5 frequencies to obtain conversion coefficients;  
extraction means for extracting a specific area in  
an image represented by said digital image data based on  
said conversion coefficients; and  
quantization means for performing quantization  
10 processing on said conversion coefficients while  
changing a quantization characteristic in accordance  
with the specific area extracted by said extraction  
means.
- 15 2. The image processing apparatus according to claim  
1, wherein said conversion means performs wavelet  
conversion on the input digital image data.
3. The image processing apparatus according to claim  
20 2, wherein said extraction means extracts said specific  
area by using a lowest frequency component of the  
conversion coefficients obtained by said wavelet  
conversion.
- 25 4. The image processing apparatus according to claim  
2, wherein said quantization means sets a quantization

width for high frequency components as quantization  
coefficients for various frequency components obtained  
by said wavelet conversion, to be wider than that for  
low frequency components, in said specific area and  
5 other areas than said specific area.

5. The image processing apparatus according to claim  
2, wherein said quantization means uses a shortest  
quantization width for a lowest frequency component  
10 obtained by said wavelet conversion, whether a processed  
area is said specific area or not.

6. The image processing apparatus according to claim  
1, wherein said extraction means extracts said specific  
15 area having pixels in which color difference component  
values have values in a predetermined range.

7. The image processing apparatus according to claim  
6, wherein the color difference component values  
20 supplied to said extraction means are thinned in  
accordance with a predetermined reduction rate.

8. The image processing apparatus according to claim  
1, wherein said extraction means performs matching  
25 between a binary pattern representing positions of  
pixels having color component values within a

predetermined range in said input digital image data,  
and a binary pattern representing a predetermined shape,  
and extracts said specific area based on the result of  
said matching.

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9. The image processing apparatus according to claim  
8, wherein said predetermined shape is an elliptic  
shape, and wherein said specific area is an elliptic  
area.

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10. The image processing apparatus according to claim  
8, wherein said extraction means extracts said specific  
area from a position near the central portion of an  
image represented by said digital image data, prior to  
15 other portions.

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11. The image processing apparatus according to claim  
1, wherein said quantization means applies small  
quantization coefficients to the conversion coefficients  
20 within said specific area, while applies large  
quantization coefficients to the conversion coefficients  
out of said specific area.

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12. The image processing apparatus according to claim  
1, further comprising:

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coding means for coding an output from said

quantization means; and

output means for synthesizing code data obtained  
by said coding means with information indicating said  
specific area obtained by said extraction means, and  
5 outputting synthesized information.

13. The image processing apparatus according to claim  
12, wherein the information indicating said specific  
area comprises a parameter representing a modeled area.  
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14. An image processing apparatus comprising:  
input means for inputting information indicating a  
specific area and quantized data; and  
inverse quantization means for performing inverse  
15 quantization processing on the quantized data inputted  
by said input means while changing an inverse-  
quantization processing characteristic based on the  
information indicating said specific area.

20 15. An image processing method comprising:  
a conversion step of converting input digital  
image data into coefficients based on spatial  
frequencies to obtain conversion coefficients;  
an extraction step of extracting a specific area  
25 in an image represented by said digital image data based  
on said conversion coefficients; and

a quantization step of performing quantization processing on said conversion coefficients while changing a quantization characteristic in accordance with the specific area extracted at said extraction  
5 step.

16. The image processing method according to claim 15, wherein at said conversion step, wavelet conversion is performed on the input digital image data.

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17. The image processing method according to claim 16, wherein at said extraction step, said specific area is extracted by using a lowest frequency component obtained by said wavelet conversion.

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18. The image processing method according to claim 16, wherein at said quantization step, a quantization width for high frequency components as quantization coefficients for various frequency components obtained  
20 by said wavelet conversion is set to be wider than that for low frequency components, in said specific area and other areas than said specific area.

19. The image processing method according to claim 16,  
25 wherein at said quantization step, a smallest quantization width is used for a lowest frequency

component obtained by said wavelet conversion, whether a processed area is said specific area or not.

20. The image processing method according to claim 15,  
5 wherein at said extraction step, said specific area, having pixels in which color difference component values have values in a predetermined range, is extracted.

21. The image processing method according to claim 20,  
10 wherein the color difference component values supplied to said extraction step are thinned in accordance with a predetermined reduction rate.

22. The image processing method according to claim 15,  
15 wherein at said extraction step, matching is performed between a binary pattern representing positions of pixels having color component values within a predetermined rate in said input digital image data, and a binary pattern representing a predetermined shape, and  
20 said specific area is extracted based on the result of said matching.

23. The image processing method according to claim 22,  
wherein said predetermined shape is an elliptic shape,  
25 and wherein said specific area is an elliptic area.

24. The image processing method according to claim 22,  
wherein at said extraction step, said specific area is  
extracted from a position near the central portion of an  
image represented by said digital image data, prior to  
5 other portions.

25. The image processing method according to claim 15,  
wherein at said quantization step, small quantization  
coefficients are applied to the conversion coefficients  
10 within said specific area, while large quantization  
coefficients are applied to the conversion coefficients  
out of said specific area.

26. The image processing method according to claim 15,  
15 further comprising:

a coding step of coding an output from said  
quantization means; and

an output step of synthesizing code data obtained  
at said coding step with information indicating said  
20 specific area obtained at said extraction step, and  
outputting synthesized information.

27. The image processing method according to claim 15,  
wherein the information indicating said specific area  
25 comprises a parameter representing a modeled area.

28. An image processing method comprising:  
an input step of inputting information indicating  
a specific area and quantized data; and  
an inverse quantization step of performing inverse  
5 quantization processing on the quantized data inputted  
at said input step while changing an inverse-  
quantization processing characteristic based on the  
information indicating said specific area.
- 10 29. A storage medium containing a control program for  
causing a computer to compression-encode digital image  
data, said control program comprising:  
code of conversion process for converting input  
digital image data into coefficients based on spatial  
15 frequencies to obtain conversion coefficients;  
code of extraction process for extracting a  
specific area in an image represented by said digital  
image data based on said conversion coefficients; and  
code of quantization process for performing  
20 quantization processing on said conversion coefficients  
while changing a quantization characteristic in  
accordance with the specific area extracted by said  
extraction means.
- 25 30. A storage medium containing a control program for  
causing a computer to decode and reproduce digital image



data from compression-coded data, said control program comprising:

code of input process for inputting information indicating a specific area and quantized data; and

5 code of inverse quantization process for performing inverse quantization processing on the quantized data inputted by said input means while changing an inverse-quantization processing characteristic based on the information indicating said  
10 specific area.